

### SUPPORT FOR THE AMENDMENTS

This Amendment cancels Claims 1-13; and adds new Claims 14-45. Support for the amendments is found in the specification and claims as originally filed. In particular, support for new Claims 14 and 22 is found in canceled Claims 1-2 and in the specification at Tables 1-4. Support for new Claims 15 and 23 is found in Claim 1 and in the specification at least at page 12, line 13. Support for new Claims 16-20 is found in Claims 3-7, respectively. Support for new Claim 21 is found in Claim 1. Support for new Claims 24-27 is found in Claims 3-6, respectively. Support for new Claim 28 is found in Claim 8 and in the specification at least at page 4, line 17 ("SiO<sub>2</sub>: 35 to 60%"). Support for new Claims 29 and 36 is found in the specification at least at Tables 1-4 (esp. Example 26, where  $K_2O/Na_2O = 11.0/7.3 = 1.5$ ). Support for new Claims 30 and 37 is found in Claim 8 and in the specification at least at page 12, line 13. Support for new Claims 31-34 is found in Claims 9-12, respectively. Support for new Claim 35 is found in Claim 13 and in the specification at least at page 4, line 17 ("SiO<sub>2</sub>: 35 to 60%"). Support for Claims 38-41 is found in Claims 9-12, respectively. Support for Claims 41-45 is found in canceled Claims 1-2 and in the specification at least at Tables 1-4 (esp. Example 26, where  $K_2O/Na_2O = 11.0/7.3 = 1.5$ ). No new matter would be introduced by entry of these amendments.

Upon entry of these amendments, Claims 14-45 will be pending in this application. Claims 14, 20, 28 and 35 are independent.

### REQUEST FOR RECONSIDERATION

Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

Applicants thank the Examiner for the indication that Claims 7 and 13 would be allowable if rewritten in independent form. Office Action at page 4, lines 9-10. Claim 7 is

canceled and rewritten as independent Claim 20. Claim 13 is canceled and rewritten as independent Claim 35, with "SiO<sub>2</sub>: 5 to 60%" replaced with the narrower --SiO<sub>2</sub>: 35 to 60%--. Thus, independent Claim 20, and Claims 21-27 and 43 which depend from Claim 20; and independent Claim 35, and Claims 36-41 and 45 which depend from Claim 35, are allowable over the cited prior art.

The present invention provides a crystallized glass to be used as a substrate for an optical filter such as a band pass filter to be used for a wavelength division multiplexing (WDM) optical communications system, and an optical filter. In the present invention, with respect to the composition of a crystallized glass to be used for a substrate for an optical filter, by adjusting the molar ratio K<sub>2</sub>O:Na<sub>2</sub>O to be "K<sub>2</sub>O (%) ≥ Na<sub>2</sub>O (%)", the transmittance of light having a wavelength of 1550 nm can be improved.

Claims 1-6 and 8-12 are rejected under 35 U.S.C. §103(a) over U.S. Patent 4,310,595 ("Beall"). Beall discloses a glass-ceramic article having resistance to impact and spontaneous delayed breakage. Beall at abstract. Beall discloses nothing about the transmittance of light having a wavelength of 1550 nm. Beall's Table 1 shows glass compositions in weight %. The attached sheet shows the glass compositions of Beall's Table 1 in mol%. In Beall's glass-ceramic articles, the molar ratio K<sub>2</sub>O:Na<sub>2</sub>O is > 1:3 but < 1. Beall at abstract; Claim 1.

Thus, Beall fails to suggest the independent Claim 14 limitation that "K<sub>2</sub>O (%) ≥ Na<sub>2</sub>O (%)".

Furthermore, Beall is silent about CaO, SrO and BaO.

Thus, Beall fails to suggest the independent Claim 28 limitation of a crystallized glass with 0.1 to 10 mol% CaO+SrO+BaO.

Because Beall fails to suggest all the limitations of independent Claims 14 and 28, the rejection over Beall as it applies to Claims 14-19, 28-34, 42 and 44 should be withdrawn.

Claims 41-45 are further patentably distinguishable over the cited prior art. Beall discloses that a molar ratio  $K_2O:Na_2O$  of 1 is deemed to be a practical maximum, and that the molar ratio  $K_2O:Na_2O$  will not be greater than 1. Beall at column 4, lines 34-36; column 6, lines 29-31. However, Beall teaches away from and fails to suggest the independent Claim 14 limitation that " $K_2O (\%) \geq 1.5 Na_2O (\%)$ ".

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone listed below.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.  
Norman F. Oblon



---

Corwin P. Umbach, Ph.D.  
Registration No. 40,211

Attached: Beall's Table 1 glass compositions in mol%

Customer Number

**22850**

Tel: (703) 413-3000  
Fax: (703) 413 -2220  
(OSMMN 06/04)  
CPU/rac

10/724082			US 4310595 Table 1 (mol%)																				
	Claim1 (mol%)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
	S102	MITX 30	47.03	47.29	50.19	46.22	48.32	46.29	46.58	47.23	46.2	48.3	48.1	47.1	50.8	47.3	46.4	47.5	47.7	47.0	47.2	47.3	46.9
	A1203	5	35	24.80	24.94	22.36	25.77	24.83	25.23	24.90	25.8	24.8	24.7	24.8	24.4	22.5	25.7	25.1	25.0	25.1	24.8	24.9	25.0
	Na2O	0	30	14.40	13.27	13.05	13.32	13.21	13.34	10.98	13.25	13.3	13.2	14.4	14.8	13.5	13.3	12.2	12.1	11.0	14.4	13.2	13.3
	K2O	5	30	6.32	7.94	7.03	7.17	7.11	7.98	9.64	7.14	7.2	7.1	6.3	7.1	6.5	7.1	8.8	8.8	9.6	6.3	7.9	7.9
	TiO2		7.45	6.55	7.37	7.52	6.52	6.59	7.58	7.48	7.5	6.5	6.5	6.5	6.7	6.6	7.5	6.6	6.6	7.5	5.6	4.7	
	ZrO2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.8	
	As		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	P2O5	0	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	ZnO	0	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	MgO	0	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	BaO	0	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	CaO	0	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	PbO		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	B2O3	0	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Li2O	0	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	102+ZrO2	1	15	7.45	6.55	7.37	7.52	6.52	6.59	7.58	7.48	7.52	6.52	6.50	6.53	6.69	6.56	7.54	6.58	6.61	7.49	6.81	6.51
																						7.70	

[illegible]